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AUTHOR Nolen, Patricia A.; Mathews, Paula B.
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ABSTRACT

The reading recall protocols of 24 tenth grade and 24 twelfth grade students were used in a study that investigated the relationship of average reading ability and high school grade placement to recall of expository text with adversative and attributive structures. Two test passages were written in an adversative structure with contrasting viewpoints. The remaining two passages were organized in an attributive structure, listing characteristics of events and ideas. Students were asked to read silently one of each passage type and retell what they remembered immediately and after a one-week delay. Students were also asked to identify the organizational structure of each passage, with all responses scored by discourse analysis procedures. Results showed that general processing strategies did not differ across the two grade levels, passage types, or conditions of recall. The findings suggested that the readers approached a familiar reading task with simple expectations to remember information, and with little conscious awareness that everyday relational frameworks used in understanding could be applied. (HOD)

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The Relationship of Expository Prose Structure to High School Students' Reading

Patricia A. Nolen and Paula B. Mathews
College of Education
University of Washington

Running Head: Expository Prose Structure in High School Reading

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Abstract

The relationship of average reading ability and high school grade placement to recall of expository text with adversative and attributive structures was investigated. Students in the tenth and twelfth grades silently read two expository passages, then retold what they remembered immediately and after a one-week delay. Students also were asked to identify the organizational structure of each passage, with all responses scored by Meyer's discourse analysis procedures. Results showed that general processing strategies did not differ across the two grade levels, passage types, or conditions of recall. Discussion centered on the need to augment conceptions of structure and logical relationships inherent and invariant in text by taking into account the inferential and elaborative interpretations imposed by readers.

The Relationship of Expository Prose Structure to High School Students' Reading

Process-oriented models of reading comprehension suggest that readers anticipate the psychological complexities of various generic prose structures. According to these conceptions, reader understanding and memory of written discourse reflects the goodness of fit between reader expectations and features of an author's text organization (Bisanz & Voss, 1981). Exactly how readers' text predictions and an author's organizing themes and structures combine in mediating comprehension and retention of written information is not yet clear. The study of the interface between psychological correlates of text and reader has only begun (Goetz & Armbruster, 1981). Yet there is already empirical evidence that predictions can be context-specific to titles (Dooling & Lachman, 1971), to illustrations (Bransford & Johnson, 1973), or implicitly referenced to logical relationships among word-ideas in conventional schemes for ordering propositions in prose (Meyer, 1975). Text structure guided mediation currently is favored as an explanation for the superior recall of superordinate propositions over subordinate propositions (Kintsch, 1974; Mandler & Johnson, 1977; Meyer, 1975; Stein & Glenn, 1978), and for the superior recall of content structured in adversative themes inviting comparison and contrast over similar content structured in attributive, list-like thematic organizations (Meyer & Freedle, Note 1).

Evidence that students read expository prose with either general, unfocused predictions to remember information, or with predictions constrained by the overall text structure as reflected in reconstruction of text meanings in recall, has been supplied by Meyer and Bartlett (Bartlett, 1978; Meyer, Brandt, & Bluth, 1980). Student differences in structural expectations and memory representations have appeared more pronounced for delayed recall conditions than for immediate recall, with skilled readers particularly adept at using text organization predictions and confirmation for information storage and retrieval (Meyer et al., 1980).

One approach to studying the influence of structural expectations on comprehension and recall has been a comparison of readers differing in skill. A number of findings now show that comprehension mediated by sensitivity to text structure increases with age and/or reading ability (Danner, 1976; Smiley, Oakley, Worthen, Campione, & Brown, 1978; Whaley,1981), but there also is evidence that students can reach college with this aspect of reading comprehension relatively undeveloped (Eamon, 1978). Characteristically, high school readers have been included as one reference population in contrastive studies across widely disparate age/grade ranges, undoubtedly because mastery of the high school curriculum depends upon efficient reading of expository text. However, the paucity of contrastive studies limited to high school readers might suggest that a relatively stable use of discourse relationships in reading comprehension and recall has been established in the lower grades.

Confounding any assumption that text perspectives may develop little beyond the high school years, is the problem of providing equivalent reading tasks for a broad range of reading skill. Structural and stylistic features of expository prose are notoriously different in different reading situations, with different reading contents, and with different dimensions of conceptual complexity and levels of abstraction of embedded ideas (Adams, 1980). Prose passages similar on one set of criteria may not be similar for readers at the end points of a range on another set. Even a reader's reasons for reading can influence sensitivity to text structure (Frederiksen, 1975). Perhaps Taylor (1979) voiced just such concern in questioning whether her third-grade passage for a contrastive investigation was the cause of adult recalls insensitive to text hierarchy relationships. Similar concern must have underscored Whaley's (1981) questioning whether or not her third-grade reading task suitable for elementary readers unduly constrained secondary readers by its very simplicity. With broad cross grade comparisons especially vulnerable to age-specific and passage-specific variables, and with little documentation that an increase in abilities to integrate information from expository prose accompanies progression through high school, a comparison limited to tenth- and twelfth-grade students' structure mediated comprehension and recall of four prose passages was undertaken. The passages and conditions of administration were representative of tasks familiar to secondary students, and the reading selections previously had been carefully analyzed and equated on structure variables in a study by Bartlett (1978). The research question

was whether or not a difference obtained between two high school grades in which reading comprehension was subject for instruction, and reading expository text was the major means for school learning.

Method

Subjects

The reading recall protocols of tenth-grade (N = 24) and twelfth-grade (N = 24) students were designated for study. Reading skill differences were defined by grade, with all subjects scoring between the 25th and 75th percentiles on the reading comprehension subtest of the California Achievement Test. Form C, Level 19 (CTB, McGraw Hill, 1977). The range of reading achievement was restricted in order to rule out any undue influence of extremes of good and poor reading achievement.

Test Passages

Response data were based on the immediate and delayed recall of four expository prose passages following the administration of a short passage for practice. Two test passages were written in an adversative structure with contrasting viewpoints. The remaining two passages were organized in an attributive structure, listing characteristics of events and ideas. All four reading selections were analyzed into detailed hierarchies of text of

idea units according to Meyer's (1975) procedures for outlining structural and stylistic features associated with thematic significance of text ideas. The test passages were from eighth-grade textbooks adapted by Bartlett (1978) to ensure equivalency on five criteria, which included: (a) top-level or overall structure, (b) maximum score possible for recall, (c) number of words, (d) interest, and (e) readability.

All 48 subjects attained a score of 90 per cent or better on an oral word recognition test comprised of words lowest in frequency in the reading selections. In individual sessions subsequent to the practice period, each subject read one adversative and one attributive passage, randomly selected and ordered for presentation. Following each passage, subjects were asked to retell as much as possible of what they had read. When subjects signified they could recall nothing else, they were asked what plan the author used to organize information in the reading selection. The same recall procedures were followed in testing subjects one week after the initial testing period. All responses were recorded on tape and transcribed for scoring.

Following Meyer (1975) it was assumed that the organization of concepts reconstructed in the retellings would reflect reader predictions about overall passage ideas and the relationships among ideas subsidiary to a central theme. The transcribed recall protocols were analyzed by Meyer's (1975) scoring procedures and compared to the units in the content structures of the passages. Reconstructed idea units corresponding to top-level

rhetorical predicates and related content at the highest level of the prose structures were credited two points. Major idea units at the second and third levels were credited one point. The total number of points in the two categories provided a subject's central idea score, a measure of subject sensitivity to top-level structures supplied by an author. Inter-rater reliability was established by a second scoring of ten randomly selected recall protocols by a person trained in the scoring technique. Agreement on whether a particular unit from the original passage was present in a recall protocol was 94.5 per cent.

A wide range of responses to the question concerning organization of the passages was scored for correct identification of the attributive and adversative structures. For the adversative passages, correct recalls required reference to an organization supporting contrasting or competing views. For the attributive passages, correct recalls required organization with a general statement supported by details of subsidiary importance. As a reliability check, an independent evaluator rated a random selection of 20 structure identification responses, with agreement attained on 19 (95 per cent).

Four levels of identification and recall of text structures originally established by Bartlett (1978) were determined:

Level 1: Correct identification of passage structure and use of a matching top level structure in recall as indicated by the Central Idea score.

Level 2: Inaccurate or no identification of passage structures accompanied by use of a top level structure in recall matching that of a test passage.

Level 3: Identification of passage structure without reconstruction of a matching structure in passage content recall.

Level 4: Structure incorrectly identified, if at all. No organizational structure replicating that of the reading passages in recall.

Statistical Design

To test the hypotheses that recall of the central ideas of expository reading passages was related to reading achievement, with the relationship stronger for twelfth-grade students than for tenth-grade students, for adversative, than for attributive passages, and for delayed recall than for immediate recall, Spearman rank order coefficients and appropriate tests of significance were computed.

Results

Reconstruction of an author's text structure in reading recall reflected in Central Idea scores and reading achievement were positively correlated (r Immediate = .44 df = 46, p = .01; r Delayed = .37, df = 46, p = .01), although the relationship was not significantly greater for 12th

grade than for 10th grade students (z = .60 p > .05), for immediate recall than for delayed recall (z = .53, p >.5), or for adversative passages than for attributive passages at either grade level in either recall condition (z_{10} Immediate = .55, p .05; z_{12} Immediate = .13, p > .05; z_{10} Delayed = -.81, p > .05; z_{12} Delayed = .16, p > .05). These data are summarized in Table 1.

Insert Table 1 about here

Summed over passage types, responses were evaluated according to four strategy levels for identifying and reconstructing expository passage structures. In this analysis, 30.2 per cent of the subjects identified and matched text structures in recall (Level 1), 52.1 per cent matched text structures in recall without overt identification (Level 2), 2.1 per cent correctly identified text structures without basing recall of passage content on organizational themes (Level 3), and 15.6 per cent neither identified nor matched structural themes in recalling the content of passages (Level 4). For adversative passages, 22.5 per cent of the high school subjects were at Level 1, 58.3 percent at Level 2, 2.6 percent at Level 3, and 16.6 per cent a Level 4. For attributive passages, 37.5 per cent of high school subjects were at Level 1, 45.6 per cent were at Level 2, 2.6 per cent were at Level 3, and 14.6 per cent at Level 4. The frequency distributions for subjects at each grade level and for each passage type are shown in Figures 1 through 3.

Insert Figures 1, 2, and 3 about here

There were not significantly more twelfth-grade students than tenth-grade students using Level 1 strategies in reconstructing the meanings of expository text in recall (^{2} = 2.8, p > .05). Spearman rank order correlation coefficients between strategy level and total immediate recall attained significance for each passage type ($r_{Attributive}$ = -.32, df = 46, p = .01; $r_{Adversative}$ -.34, df = 46, p = .01), demonstrating once again that the two measures of reading comprehension are closely associated. As recall adequacy increased, there was an increase in use of a text structure organization.

Discussion

Text processing differences undoubtedly exist among the full range of high school students across grade levels, but findings of this study suggested stability. With extremes at both ends of the reading ability continuum removed from consideration, average readers in the twelfth grade did not handle the text processing task any differently from average readers in the tenth grade. Whatever age, ability, or experientially related changes occur to produce a marked developmental increase in sensitivity to formal aspects of text structure, that change seems to come about earlier than the last three years of high school. Taylor's (1980)

suggestion that much of the change may occur during the upper elementary or junior high school years thus has some support.

Contributing to the impression that average high school readers make little progress in anticipating or using text structures as an organizational aid in understanding and memory was the finding that adversative passages with requirements for generating a rich relational network in comprehension yielded no more adequate recall than attributive passages with their main idea-supporting detail frameworks. While findings like these are always suspect on the basis of population-specific or passage-specific variables, this demonstration of stability suggests that average readers in this study had not made good use of their two additional years of reading instruction beyond the tenth grade. Should a replication yield similar results, there are implications for curriculum planning.

Failure to find differences between immediate and delayed recall also contributed to the impression of stability. While such results were predictable from the failure of subjects to handle differentially passage types requiring different levels of processing during immediate recall, the findings are nonetheless important. They suggest that average readers in this study, like those of Meyer et al. (1980), approached a familiar reading task with simple expectations to remember information, and with little conscious awareness that everyday relational frameworks employed in understanding could be applied.

The last observation points up the fact that any theory that considers organizational structure as inherent only in the text may be incomplete, if not untenable (Goetz & Armbruster, 1980). Readers' background knowledge, their instructional history, and their logical thinking abilities all determine what prose structures are anticipated, realized, organized in memory, and reconstructed in recall. In this constructivist view, the educational implications of the study go beyond the defined population, or the passage tasks only tangentially related to the reading demands of high school. The constructivist view placing organized structures in the mind of the reader as well as in the text is somewhat different from that of Meyer (1975). Yet in using Meyer's discourse structure analysis to examine the relationship of text organization and recall, there was evidence that tenth- and twelfth-grade students' reading recall was not literally bound to text. A majority of idea units produced in student retellings entered into appropriate relational structures, although many of these same units could not be scored according to Meyer's criteria because they were the product of reader inference. In this regard our conclusion is much like that of Reder (1980) who argued that discourse analysis procedures should be augmented to account for reader inferences and elaborations.

Reference Note

1. B. J. Meyer and R. D. Freedle. Effects of discourse type on recall (Prose learning series research report No. 6) (Tempe, Arizona: Arizona State University, Summer 1974.

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Table 1

Spearman Correlation Coefficients Between CAT Scores

and Central Idea Scores

And Comparisons Across Recall Conditions

			r	Fisher's z Transformation	z
10+12	At+Ad	Im	.44*	.47	.53
10+12	At+Ad	Del	.37*	.39	
10	At+Ad	Im+Del	.31	.41	.60
12	At+Im+Del		.27	.28	
10	At	Im	.23*	.23	.55
10	Ad	Im	.38	.40	
12	At	Im	.22	.22	.13
12	Ad	Im	.26	.26	
10	At	Del	.26	.27	-.81
10	Ad	Del	.02	.02	
12	At	Del	.23	.26	.16
12	Ad	Del	.31	.31	

Note: z values of 1.96 and 2.58 are required for significant differences at the 5 and 1 per cent levels.

* Statistically significant .05

10 = 10th graders
12 = 12th graders
At = attributive passage
Ad = adversive passage
Im = immediate recall
Del = delayed recall

Figure 1
Bar Graph of Numbers of
All Subjects at each Level of Strategy

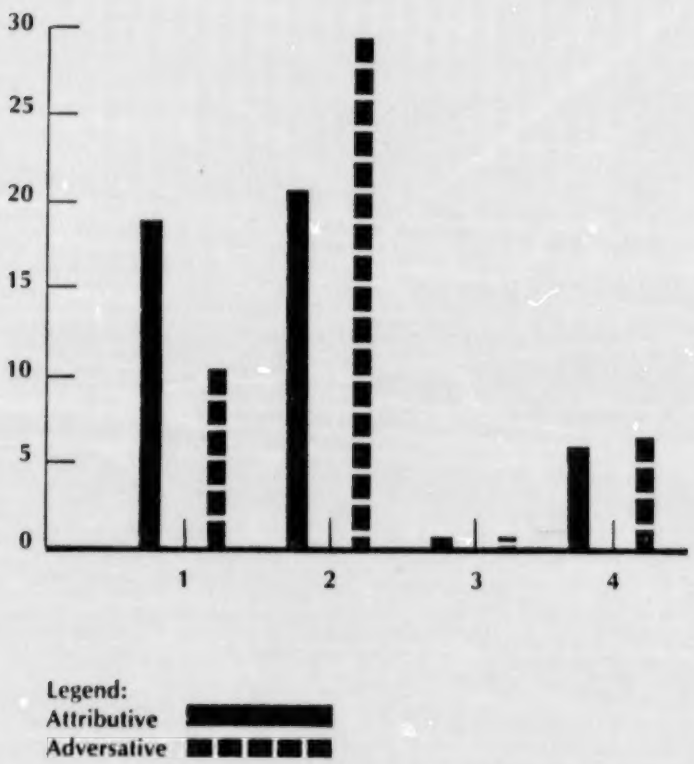

Figure 2
Bar Graph of Numbers of Tenth- and Twelfth-Grade
Students at Each Level of Strategy on Adversative Passages

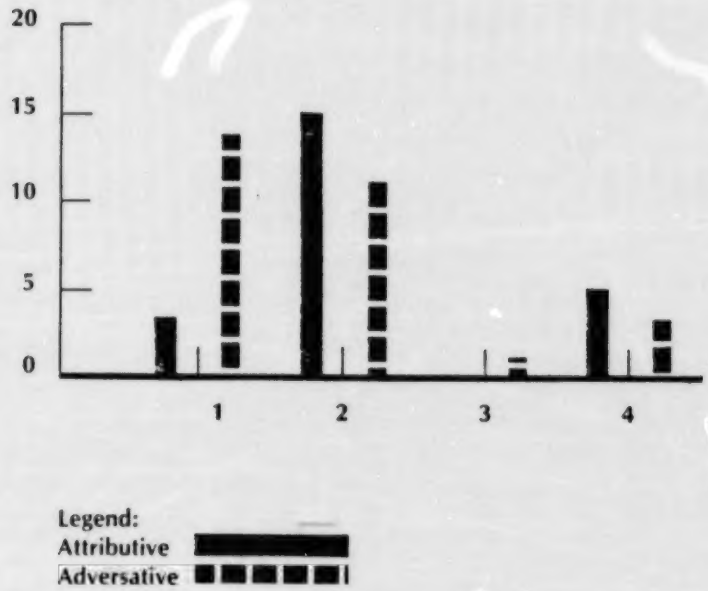

Figure 3
Bar Graph of Numbers of Tenth- and Twelfth-Grade Students
At Each Level of Strategy on Attributive Passages